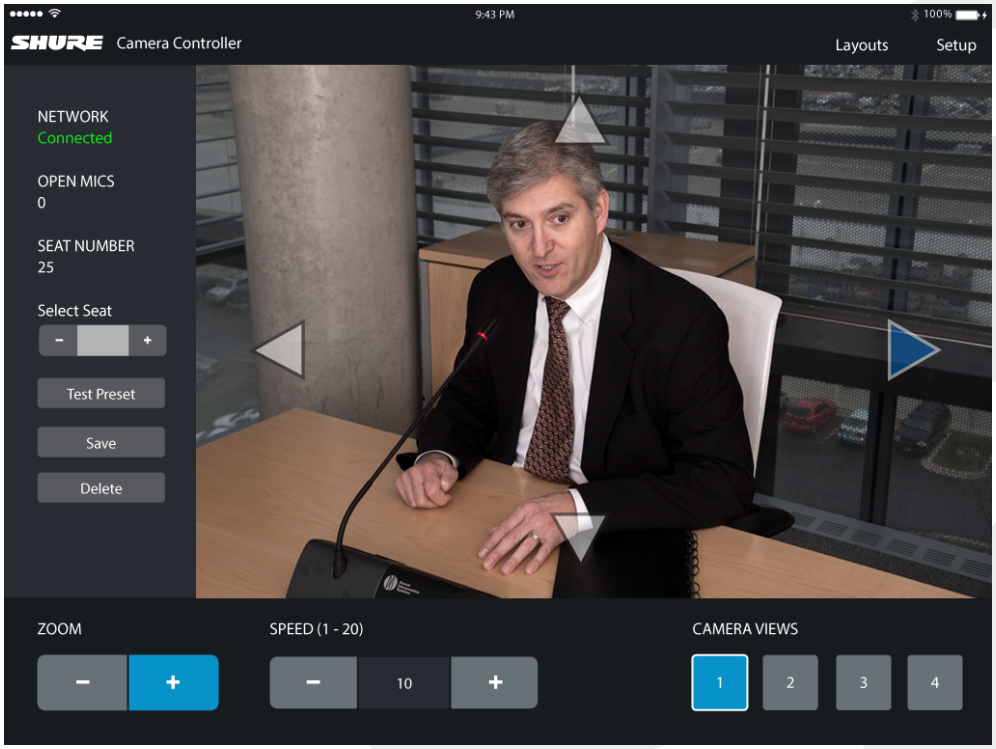
SHURE

LEGENDARY
PERFORMANCE™

Conferencing and Discussion Systems

CP 7890 Camera Control Package

USER GUIDE



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27A26855 (Rev. 1)

Table of Contents

Table of Contents 2

Overview 3

- Description 3
- Features 3
- Included Accessories 3

Installation 4

- System Overview 4
- Downloading the App 4
- Basic System Setup 5
- Adding Devices to the Camera Control Network 5

Viewing the Video Stream 6

- Video Encoder 6

Using the App 7

- Camera Control Application Description 7
- Layouts 8
- Saving a Camera Preset 8
- Set the Overview Scene 8

Multiple Camera Operation 9

- Networked Video Switcher 9
- Analog Video Switchers 9

Addendum 10

- Operation with Additional Equipment 10
- Changing the Wireless Channel 10
- VISCA Cables configuration with Sony cameras 11
- Troubleshooting 12
- Trademarks 12

Overview

Description

The Shure Camera Control Package allows remote set up and control of a camera system for conferences, discussions or meeting spaces. The package integrates with the DCS 6000 or DDS 5900 system, using realtime conference information to provide accurate, automated camera display of the speaker or specific participants. A steady, consistent camera feed is available for live broadcast or archival recording.

A camera setup application operates on an iPad® or Android™ tablet, providing a quick and simple method for programming the camera view. The app is used to save and recall room layouts of up to 400 seats for four cameras.

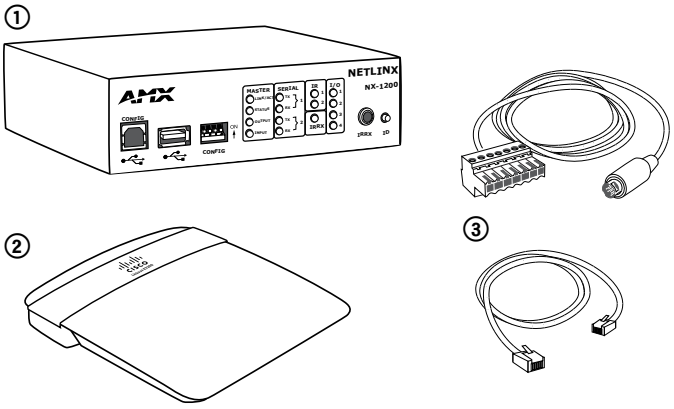
The camera views are saved to the AMX controller, which contains preloaded Shure control software for plug-and-play operation. Once the camera views are programmed and saved from the app, the AMX unit operates the camera system without requiring the tablet. The CP 7890 system supports any cameras that operate the Visca protocol.

Features

- Easily integrates a camera system with the DCS 6000 or DDS 5900 system
- Allows automated view of the speaker once their microphone is turned on
- Produces consistently accurate camera views suitable for broadcast or recording
- Operates with any camera supporting the Visca protocol
- Programs and saves three room layouts
- Stores camera views for up to 400 seats per camera
- Stores camera views for up to 4 cameras per seat
- Free camera control app operates on iPad and Android tablets

Included Accessories

Component	Description
① System Controller	AMX® NX-1200
	Camera control software (preloaded)
	Power Supply
② Wireless Router	Linksys wireless E2500
	Power Supply
③ Cables	• Camera: VISCA to RS-232 Cable, 2 m • Network: RJ-45 to RJ-45, 2 m



System Overview

The CP 7890 provides easy management of a camera system connected to a conference or discussion system. The following diagram describes the function of each component in the system.

① Control Unit*
The control unit (CU) sends realtime microphone status information to the AMX unit so that camera views match the current speakers.

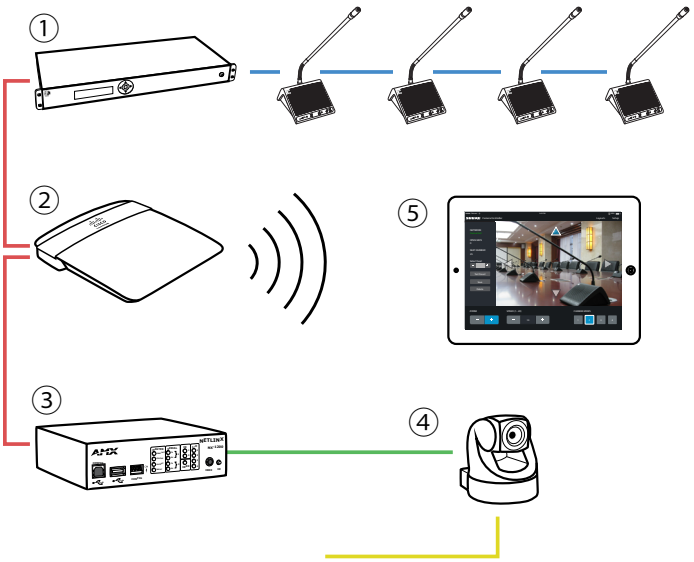
② Wireless Router
The router connects additional components and enables wireless connection to the camera system.

③ AMX Controller
The AMX controller stores settings made from the app and operates the camera system during the event.

④ Cameras*
Up to four cameras are controlled by the CP 7980 system when they are connected to the AMX unit with the VISCA to RS-232 cable.

⑤ Tablet Application
The app allows remote set up of the camera system.

*Not included with the CP 7980



Shure Camera Control Package

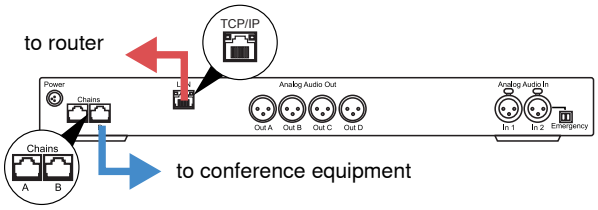
Downloading the App

Download the Shure CP 7890 Camera App for your tablet:

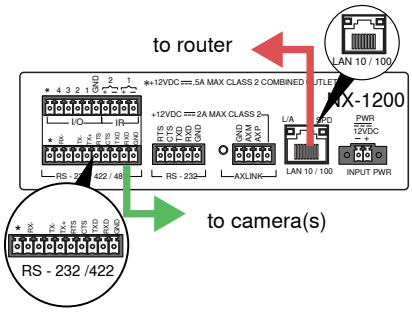
Device	Where to Download	Minimum Requirements
Apple iPad	App store	iOS 7.0
Android Tablet	Google Play™	Jelly Bean 4.1

Basic System Setup

1. Connect the **TCP/IP** port on the central unit (CU) to the router using a network cable.



2. Connect the **LAN 10/100** port on the AMX controller to the router using a network cable.



3. Connect the camera(s) to the **RS-232/422/485** port on the AMX controller using the Visca cable.
4. Power on the equipment.
5. Change the IP settings of the CU to **192.168.10.110** from the front panel **LAN Setup > IP Address Setup > IP Address.**
6. Download and install the Shure Camera Control app to the tablet.
7. Open the WiFi settings on the tablet and connect to the router's network name: **Shure CP 7890-xxxA**

   Note: xxx = unit's production number (001, 002, etc)
8. Enter the default network password: **123456789**
9. Open the app to begin using the system.

Adding Devices to the Camera Control Network

Specific, static IP addresses are required for each device in the camera control network. For reliable operation, make sure to assign the following IP addresses:

IP Address for Each Device

Device	Function	IP Address
Central Unit (CU)	Triggers the camera system to display the speakers during the event.	192.168.10.110
Networked Video Switcher	Control multiple cameras from a networked device.	192.168.10.111
Video Encoder	View the camera signal through the camera control application, or from a networked PC	192.168.10.91

Global Settings:

Subnet mask: 255.255.255.0
Default gateway:192.168.10.1

Viewing the Video Stream

Once components are connected, the video stream can be monitored for camera set up and management during the conference.

- If the video is displayed on an analog system, simply connect the camera's video output to a computer, TV, recorder with a video input jack.
- To view the video from the tablet or another computer on the network, a video encoder must be connected to the router. **A video encoder is required to view the cameras through the camera control application.**

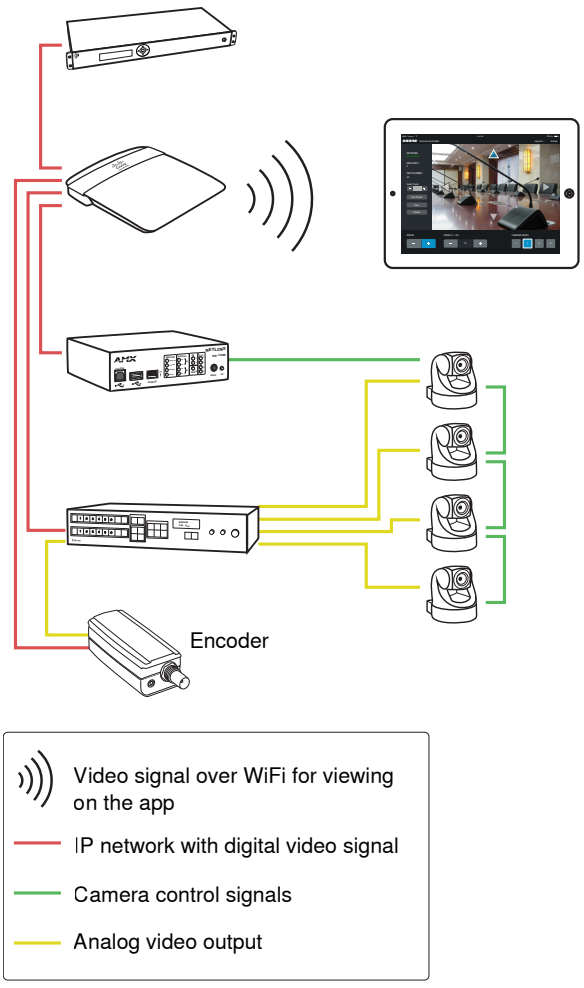
Video Encoder

Video encoders enable remote access and control of an analog video signal over an IP network. The encoder connects to the camera or camera switcher with a coaxial cable, converting analog signals into digital video streams. The digital stream is accessible for viewing on the tablet or recording from a computer.

Important: a video encoder is required for viewing the video picture on the camera control application.

To connect a video encoder to the Shure Camera Control system:

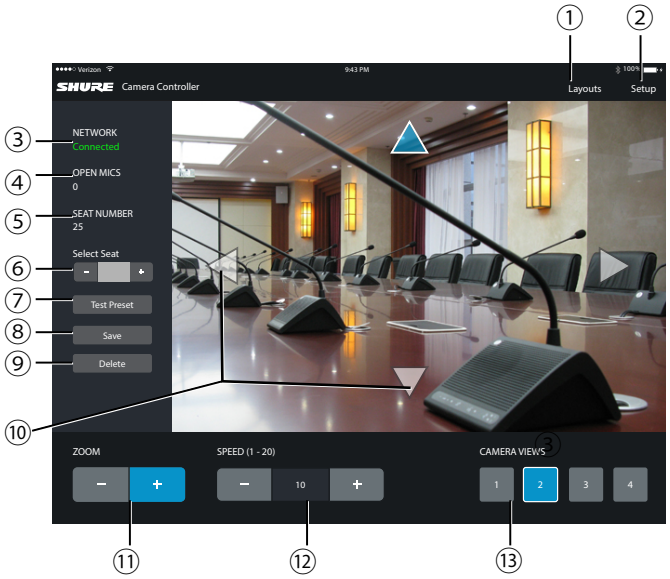
1. Use a coaxial cable to connect the encoder to the video output on the camera or video switcher.
2. Power the encoder with a power supply or PoE injector.
3. Connect the encoder to the router with a network cable.
4. Assign the following IP address to the encoder: **192.168.10.91**.


Encoder
Video signal over WiFi for viewing on the app
IP network with digital video signal
Camera control signals
Analog video output

Video Encoder with the CP 7980 Camera System

The encoder adds video to the IP network

Camera Control Application Description



① Layouts

A layout is a collection of saved camera views that correspond to seats in the DDS 5900 or DCS 6000 system. Recall and save camera settings for up to three room layouts.

② Setup Menu

Number of Cameras

Select the number of cameras used in the system (1 - 4).

Max NOM to Overview

The camera system defaults to the overview scene when the maximum number of open microphones (NOM) has been reached. This setting avoids overly-confusing camera switching when multiple people are in a dialogue. Variable from 1 - 8 microphones.

Overview Delay

Set a short delay before the system displays the overview when the maximum NOM is reached (1 - 10 seconds).

Camera Tracking

- On: Cameras automatically move according to the saved layout
- Off (bypass): Cameras do not follow any saved layouts

③ Network

Connected illuminates green when the tablet is connected to the same network as the wireless router and AMX control unit.

④ Open Mics

Displays the number of microphones that are turned on in the connected DCS 6000 or DDS 5900 system.

⑤ Seat Number

Displays the selected number for saving a camera setting or testing the preset.

⑥ Select Seat

Scroll to the desired seat by pressing the up (+) and down (-) buttons. Seats 0 - 400 are selectable for DDS 5900 and DCS 6000 systems. The seat number displays in the above field.

⑦ Test Preset

Select to view the saved camera view for that seat.

⑧ Save

Saves the current camera view.

⑨ Delete

Clears the preset for that seat.

⑩ Adjustment Arrows

Press the arrows to move the camera to the desired view.

⑪ Zoom

Control the coverage area of the view by pressing the zoom in (+) or zoom out (-) buttons.

⑫ Speed

Adjust the speed of the camera movement from 1 (fastest) to 20 (slowest).

Note: Does not save; for setup only.

⑬ Camera Views

Select between cameras for setting up the view preset for each seat.

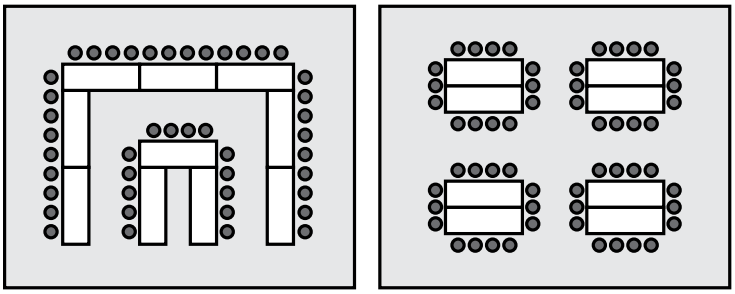
Layouts

A layout is a collection of saved camera views that correspond to seats in the DDS 5900 or DCS 6000 system. Saving layouts reduces set up time when sharing equipment between rooms and meetings. The system supports up to three layouts at a time.

Use the application to save camera views to the AMX controller. The settings persist in the controller and do not require the tablet to operate the camera system during the event.

Begin by opening a layout. Go to the **Layouts** menu from the main screen. Select one of the layouts:

- Recall: open the layout from the AMX unit.
- Save: save layout updates to the AMX unit.



Save Multiple Room Arrangements

The camera control app allows camera systems to operate in mixed-use rooms by saving seating positions for up to three different seating arrangements, or **Layouts**.

Saving a Camera Preset

When using the DCS 6000 or DDS 5900 systems, seats 0 - 400 can be assigned a camera preset with the CP 7890 system.

1. Select a layout and press **Recall** to load the settings from the AMX unit.
2. Turn on a microphone. The seat number displays in the **Seat Number** field.
3. Select the camera.
4. Press the arrows to move the camera to the desired position.
5. Press the save button. The selected camera button shows displays with a darker outline to show that the preset has been saved.
6. To set additional camera presets for the same seat, repeat steps 2-4.
7. Set the preset for the rest of the seats by turning off the first microphone and repeat the steps 1-6.
8. Save the layout (**Layouts** > **Save**).

Tip: For quick configuration, use the keypad to type the seat number. When that seat is completed, the next seat can be selected using the left and right arrow buttons.

Set the Overview Scene

The overview scene displays a field-of-view shot of the event that doesn't focus on a particular participant. The overview scene displays when the no microphones are on, or the maximum number of microphones (Max NOM) has been reached. The overview scene is useful in several scenarios:

- Capturing dialogue between several people
- Situations where camera switching is not necessary, such as before and after a meeting.

Set the overview scene by positioning the camera for seat 0 or 400.

Settings

Max NOM to Overview

When the camera system reaches the selected maximum number of open microphones (NOM), the view defaults to Overview to avoid excessive camera switching during dialogue. Variable from one to eight microphones.

Overview Delay

Set a short delay before the video feed displays the overview shot (1 – 10 seconds). A setting of "0" restricts the system from switching to the overview scene.

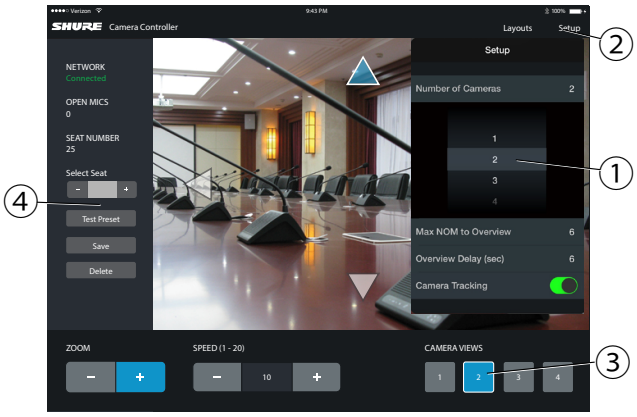
Multiple Camera Operation

When using more than one camera, connect a video switcher to manage multiple video feeds. There are two types of switchers:

- Networked switchers: connect to the wireless router with a LAN cable
- Analog switchers: use contact closures connected to the AMX unit

Once the camera and video switchers are connected to the system, open the application.

1. Select the total number of cameras from the menu: **`Setup`** > **`Number of Cameras`**.
2. Press **`Setup`** to exit the menu.
3. Select one of four numbered blocks to select the camera.
4. Position it and press the **`Save`** button.



Save Scenes for Multiple Cameras

Camera 1 is the default camera when a microphone is turned on. When a second microphone turns on, Camera 2 will display for that speaker, and so on.

Networked Video Switcher

This type of switcher connects to the camera system over the IP network. The system operates with the Extron® Seamless Switcher ISS 506.

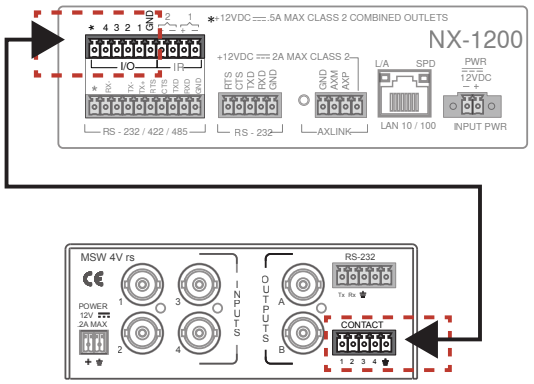
Use a typical network cable to connect the switcher to the RJ-45 ports on the wireless router. The switcher must use the following IP address for system compatibility: **192.168.10.111**

Extron Seamless Switcher ISS 506

Analog Video Switchers

Analog video switchers connect directly to the AMX control unit with a multi-pin, contact closure to ground. The AMX routes commands from the tablet application to the analog switcher for initial setup, and controls the switcher during the event according to the saved layout.

AMX controller control I/O



Analog switcher contact inputs

Example Analog Switcher

Connect the switcher contact output to the **`I/O`** ports on the AMX unit.

Addendum

Operation with Additional Equipment

Additional components may operate with the camera control system. Go to **Settings** menu to select from the compatible component categories:

- Camera protocol
- Microphone system
- Camera switcher

Changing the Wireless Channel

Change the wireless router channel if there is a problem with the tablet connection.

1. Connect a computer to the router using a wired or wireless connection.
2. Access the router interface by opening a browser. Type the following in the address line: **http://192.168.10.1** and press enter.
3. Enter the site by typing in the default credentials:

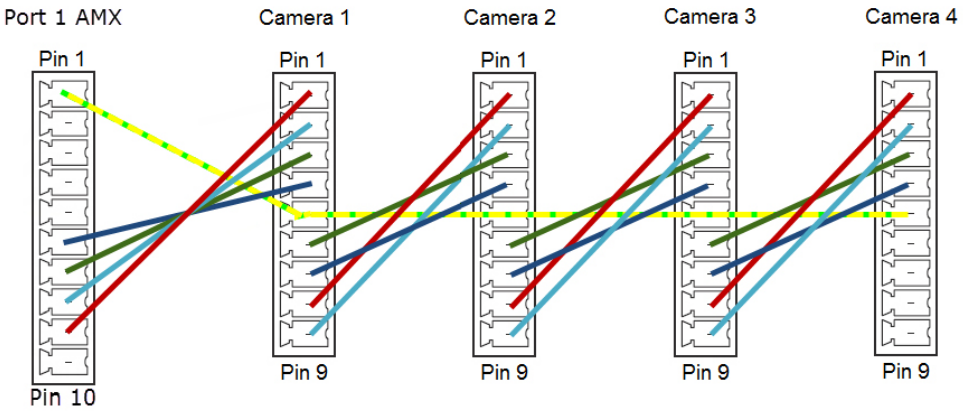
   Login: (leave empty)

   Password: admin
4. Go to **Basis** **Wireless** **Settings** > **Wireless** and change the channel from **Auto** to any of the channels 36 – 40 – 44 – 48.
5. Save settings and reboot the router.

VISCA Control Cables configuration with Sony cameras

Reference the following drawing for the VISCA cable configuration for both RS-422 and RS-232 for Sony cameras.

RS-422 Connection



Phoenix 10 pin layout

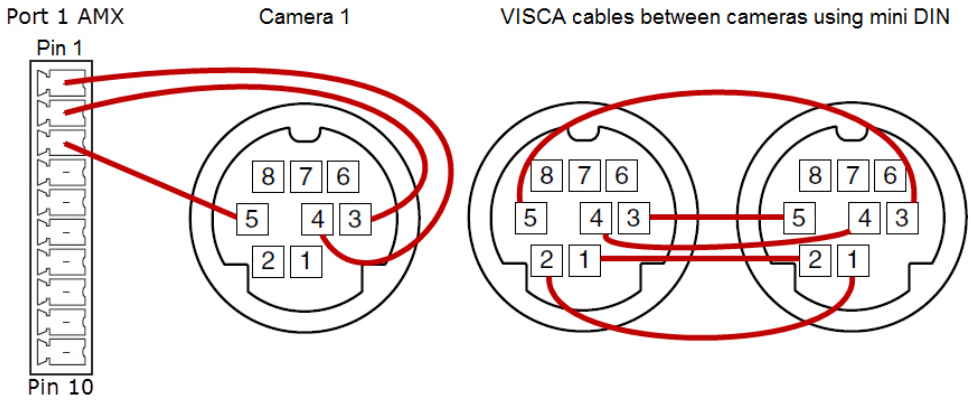
Pin no.	Function
1	GND
2	RXD (RS232)
3	TXD (RS232)
4	CTS (RS232)
5	RTS (RS232)
6	TX+
7	TX-
8	RX+
9	RX-
10	+12V

Phoenix 9 pin layout

Pin no.	Function
1	TX In +
2	TX In -
3	RX In +
4	Rx In -
5	GND
6	TX Out +
7	TX OUT -
8	RX Out +
9	RX Out -

Note: The pin layout shown for RS-422 is for Sony EVI-D70P cameras. For Sony BRC-300/300P cameras, Pin 1 and Pin 9 are swapped. For other cameras, please check the camera manual.

RS-232 Connection



Phoenix 10 pin layout

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4	CTS (RS232)
5	RTS (RS232)
6	TX+
7	TX-
8	RX+
9	RX-
10	+12V

8 pin mini DIN layout

Pin no.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	N.C.
8	N.C.

8 pin mini DIN layout

Pin no.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	N.C.
8	N.C.

Troubleshooting

The menus in the CP 7890 software are not active	• Check the WiFi settings on the tablet. The Shure CP 7890-xxxA should be connected
The camera view does not move when controlling from the Camera Operation or Camera Preset menu	• Check that the Visca cable from the camera is connected to the **RS-232/422/485** port on the AMX unit • Check whether RS-232 or RS-422 is used and corresponding setting is used on the camera • Reboot the camera
The seat no. does not display when turning microphones on	• Check LAN connection between central unit (CU) and wireless router. The cable must be connected to the **LAN** port on central unit and NOT the**DCS-LAN** port • Check that the IP address of the CU is set to **192.168.10.110**
No camera movement when turning microphones on	• Check that a preset is made for the seat. Seat number must be in the range 0-400. • Check that the Camera is connected and working by loading a layout and pressing the test preset button for a seat. • Check that **Camera Tracking** is on (**Setup** menu in the app)

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SHURE®

LEGENDARY
PERFORMANCE™

United States, Canada,
Latin America, Caribbean:
Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714-4608 USA

Phone: +1 847-600-2000
Fax: +1 847-600-1212 (USA)
Fax: +1 847-600-6446
Email: info@shure.com
www.shure.com

Europe, Middle East, Africa:
Shure Europe GmbH
Jakob-Dieffenbacher-Str. 12,
75031 Eppingen, Germany

Phone: +49-7262-92490
Fax: +49-7262-9249114
Email: info@shure.de
www.shure.eu

Asia, Pacific:
Shure Asia Limited
22/F, 625 King's Road
North Point, Island East
Hong Kong

Phone: +852-2893-4290
Fax: +852-2893-4055
Email: info@shure.com.hk
www.shureasia.com